DETAILED ACTION

1. All outstanding rejections, except for those maintained below are withdrawn in light of the amendment filed on **3/16/2009**.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The new grounds of rejection set forth below are necessitated by applicant's amendment filed on **3/16/2009**. In particular, **Claim 1** has been amended to recite wherein said group –COOH and/or –OH are contained in an amount of 0.1 to 30% by mole based on the total number of monomers of said organic resin component. Support is noted in previous Claim 4 and on page 11, lines 11-15 of the specification. This limitation was not present in the claims at the time of the preceding Office Action. Thus, the following action is properly made **FINAL**.

2. For applicant's attention, it is noted that documents in applicant's filings reflect Serial No. 1***1***/553,095. The serial number for this application is 10/553,095.

Claim Rejections - 35 USC § 103

3. **Claims 1, 3, 7-9 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Aoki et al. (JP 2002-075982 A)** in view of **Allen et al. (US 6,420,441).**

The rejection is adequately set forth in **paragraph 3** of the office action mailed **12/18/2009**, and is incorporated here by reference.

With regard to *amended* Claim 1, **Aoki** teaches a coating composition having a polyalkylsilazane and polyacrylic ester or polymethacrylic acid ester (see par [0008], [0022]) **Allen** discloses discusses a method for reducing the dielectric constant of the material by incorporating within the film very small, uniformly dispersed pores or voids by incorporating a porogen. (See col 2 line 7-15, col 4 line 21-25) Particularly useful substituted alkyl (meth) acrylate monomers are those with one or more hydroxyl (-OH) group in the alkyl radical, especially those where the hydroxyl group is found at the β-position (2-position) such as 2-hydroxyethyl methacrylate, 2-hydroxypropyl methacrylate, and 2-hydroxybutyl methacrylate. (See col 5 line 35-52)

Allen describes that certain polymers, when incorporated into a dielectric matrix provide a dielectric matrix material having smaller pores, pores of a lower degree of polydispersity, and a greater percentage of pores by volume. (See col 1 line 66-col 2 line 6) Additionally, porogens that are compatible with the silicone polymer are more uniformly dispersed. (See col 14 line 1-9) Furthermore, the dielectric material obtained will have low stress, low dielectric constant, improved toughness, and improved compliance during mechanical compacting, as well as lower surface roughness, making subsequent layers applied on the dielectric improved. (see col 14 line 10-31) Allen teaches that particularly preferred porogens are 90% of an acrylate having no functional group, and 10% of an acrylate having a functional group which will undergo crosslinking. (See col 13 line 53-67) The hydroxyl group of Allen's preferred hydroxyl substituted acrylates will undergo crosslinking, and is also compatible with the silazane of Aoki. Therefore it would be obvious to one of ordinary skill in the art to employ

Allen's β-alkyl acrylates in an amount on the order of 10% by mol in the film of Aoki to obtain improved compatibility and fine and uniform pores which yield an improved dielectric material.

4. **Claims 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Aoki et al.** in view **of Allen et al.,** further in view of **Sunao et al. (JP 07-292321 A).**

The rejection is adequately set forth in **paragraph 4** of the office action mailed **12/18/2009**, and is incorporated here by reference.

The discussion, above in **paragraph 3**, with regard to **Aoki and Allen**, is incorporated here by reference.

Claim Rejections - 35 USC § 112

5. **Claims 3 and 9** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The rejection is adequately set forth in **paragraph 2** of the office action mailed **12/18/2009**, and is incorporated here by reference.

Response to Arguments

6. Applicant's arguments filed **3/16/2009** have been fully considered. Specifically, applicant argues

(A) In Claim 3, the limitation of 25% is supported in the Example Section by Examples 1-3, each of which has a resin content of 25%; the range of 5 to 25% is within

the written description; applicants have demonstrated that the range is within the broader range of 5 to 150% and both values of 5% and 25% are disclosed.

(B) In Claim 9, the limitation of 3.5 GPA is supported in the Examples Section in Examples 2; in response to the Examiner's statement that the examples are in the context of specific films of specific polymers, which are themselves obtained from specific monomers, it is noted by applicant that all examples have to be specific since such is the nature of an example; if a value is disclosed in an Example, then it is part of the written description.

(C) Claim 1 has been amended to include the limitation that the group –COOH and –PH are contained in an amount of 0.1 to 30% by mole based on the total number of monomers of said organic resin; The examiner has stated that it would have been obvious to follow the teaching of Allen when selecting the organic resin component for the invention of Aoki. Allen discloses a large list of possible monomers that may be incorporated into the polymers with no specific teaching as to the incorporation of these monomers in an amount of 0.1 to 30% by mole based on the total number of monomers; the long list of monomers disclosed in Allen from col 4 line 12 to col 6 line 52; The examiner has stated that a ratio of 1:1 would be used by one of ordinary skill in the art; the instant application teaches that an amount of 0.1 to 30% is preferred, since crosslinking is insufficient below 0.01 mol%, and excessive above 50% mol.

(D) It is noted that resins do not have an elastic modulus and thus the combination of references is not valid; furthermore as applicants have presented

arguments that Claim 1 is novel, and Claim 9 depends from Claim 1, the rejection should be removed.

7. **With respect to argument (A),** applicant's arguments have been considered but are ***not*** **persuasive**. An amendment to the claims must be analyzed to determine whether the applicant has demonstrated possession of the claimed invention. MPEP 2163 (II) A2. The amended range is 5% to 25%. The unamended claim recited 5 to 150%, and the specification teaches that the range of resin component should be 5 to 150%, preferably 10 to 120%, and particularly 20% to 100% by mass. The examples are all given at ***exactly*** 25% by mass, which does not show possession of the ***range*** 5% to 25%, and the examples are not commensurate with the instantly claimed range. One of ordinary skill in the art, given the disclosure and examples would not understand examples at 25% to give the range of 5 to 25%; rather 25% would be seen as falling within the particular range 20% to 100% by mass. In fact, one of ordinary skill in the art would regard the range 5% to 25% as falling largely outside of applicant's most particularly preferred range. While, taken in combination, the disclosure and examples supports a range of 20% to 100%, a range of 20% to 25% or a content of 25%, it does not support a range of 5 to 25%.

With respect to argument (B), applicant's arguments have been considered but are ***not*** **persuasive**. Although applicant is correct that examples are specific by nature, the point at issue is not whether the Examples are part of the written description, but whether the examples are or are not commensurate with the scope of the claims. The

claimed values for the elastic modulus of the siliceous film are a property of a specific composition. Claim 1, from which Claim 9 depends broadly cites a composition comprising a solvent, a polyalkylsilazane and at least one organic resin component. The content of each of these three components is not recited anywhere in Claim 1, and the formula and average molecular weight of the silazane are both given broadly; the formula can be one of two different structures, and the molecular weight is anywhere from 100 to 50,000. Although the properties of the examples, which are specific on each of these counts, fall within the range 3.0 to 3.5 MPa, the broad recitation given in current Claim 1 is not commensurate in scope with only compositions which are expected to produce properties in this range; on the contrary as there no limitation on, for example, the molecular weight of the polyalkylsilazane, an extremely low molecular weight silazane in a very small ratio with the organic resin may not have a elastic modulus falling within this range at all. Therefore although applicant's examples show that with the polymers and ratios given in the examples, applicant clearly does have possession of the claimed range, it has not been shown that applicant possesses the claimed range for the composition as broadly recited in Claim 1.

With respect to arguments (C) and (D), applicant's arguments have been considered but are ***not*** **persuasive**. The hydroxyl substituted acrylate monomers, which Allen teaches as particularly preferred as a particularly useful (see col 5 line 35-40) function as crosslinking agents. Allen teaches that particularly preferred porogens are 90% of an acrylate having no functional group, and 10% of an acrylate having a functional group which will undergo crosslinking. (See col 13 line 53-67) Therefore it

would be obvious to one of ordinary skill in the art to select a content of the hydroxyl substitution as 10% by mol, which falls within applicant's instantly claimed range.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Friday 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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